REMARKS

In accordance with the above amendments, claims 31-33 and 64 have been amended and new claims 66 and 67 have been added. Claims 34-63 and 65 stand as having been withdrawn from consideration as being directed to one or more non-elected inventions. Applicants reserve the right to pursue any of the withdrawn claims in one or more divisional or continuing applications.

It is noted that Figure 5 has been objected to because the amino acid sequences were illegible and because the sequence disclosures in that figure did not reference the appropriate sequence identifiers. Accordingly, a new Figure 5 is being submitted herewith for the Examiner's approval which clarifies the amino acid sequences and includes the appropriate sequence identifier for each. The replacement figure contains no new matter.

It is believed that the amended claims and newly added claims overcome the objections and rejections under 35 USC § 112 and also the rejection under 35 USC § 101, as will be explained below. Applicants also believe that all the amendments to the claims and newly added claims are well supported by materials contained in the original disclosure.

Thus, with respect to claims 31 and 33, the material in newly added sub-paragraph (ii) finds support on page 5, lines 15-20. The material in sub-paragraph (iii) finds support on page 6, lines 15-16.

The material added to claim 64 is supported on page 21, lines 3-5 and 20-23. Finally, new claims 66 and 67 find support in the text on page 6, lines 11-13.

With respect to the rejection of claims 31-33 and 64 under 35 USC § 101, applicants have adopted the suggestion of the Examiner by directing the claim language in a manner such that the peptides of all the present claims are described as "isolated and purified". Accordingly, applicants request that this rejection be withdrawn.

With respect to the rejection of claims 31-33 and 64 under 35 USC § 112, second paragraph, the language of the claims has been amended to claim the subject matter more distinctly. The peptides of the Markush groups of claims 31 and 33 are now defined as consisting of the defined sequences to indicate that they do not encompass full length sequences or larger fragments comprising the claimed sequences. Thus, the "variant" of claim 31 "consists" of the sequence of part (i), subject to substitutions or deletions (but not additions) and so it

logically cannot be a larger sequence that comprises the defined sequence. Similarly, the variant of claim 33 is defined as consisting of "ten amino acids". "Fragments" as defined in claims 31 and 33 can only be smaller partial sequences of the sequences of parts (i) and (ii) of each claim. Therefore, it follows that the peptides defined by claims 31 and 33 do not encompass larger peptides that comprise the defined sequence. On the contrary, the claims use "closed" language and the "metes and bounds" are believed to be clearly defined. Also, the term "about" has been deleted from Claim 33 in order to address the examiner's comments.

Regarding claim 64, it should be noted that measurement of the rate of hydrogen/deuterium amide exchange is a well known and conventional technique used in the field of protein folding (for example, see Voet and Voet, Biochemistry 2n Edtn, 1996, p207-208, copy enclosed). This reference is also cited on an attached form PTO-1449 for the Examiner's official consideration. It allows regions of proteins or peptides whose amide group protons are unavailable for hydrogen exchange with water to be identified. With reference to Voet and Voet, amide proteins are unavailable for hydrogen exchange if they are located in protein interiors

and hence "largely excluded from contact with their surrounding aqueous solvent" or "while they are engaged in hydrogen bonding". Hence the type of stability measured by this technique is both physical and chemical. Claim 64 has been amended to indicate the physio-chemical features that constitute stability with reference to hydrogen/deuterium amide exchange, i.e. "reduced hydrogen/deuterium exchange compared to an unfolded equivalent".

The rejection of the claims under 35 USC § 112, first paragraph, regarding the adequacy of the written description of the invention is believed to also have been overcome by the amendments to the claims. The issue raised in this application is whether the original application provides adequate support for the claimed genus of PrP^C variants.

The issue, of course, was raised in respect of the previous claims, which included no specific detail about the nature of a "variant". Claims 31 and 33 have now been amended and provide clear structural definitions of variants. Specifically, claim 31 (ii) requires a variant to have the sequence of the defined peptide other than for substitutions or deletions such that the variant has at least 90% sequence identity over a region o 10

amino acids of explicitly defined sequences. Claim 33 (ii) requires a variant to have a defined 10 amino acid sequence other than for one or two amino acid variations. Therefore, the reader is given clear structural guidance to obtain, or identify, a "variant" as defined by the present claims. Moreover, particular residues suitable for variation are given in new claim 66.

Further with regard to the Examiner's comments concerning the adequacy of descriptions for biomolecule sequences, applicants believe their present description to be clearly sufficient with regard to defining the biomolecule sequences structurally in addition to functional characteristics and methods of making. Please note that the amended definition of "variants" in the present claims does not describe the variants solely in terms of a method of making coupled with its function. On the contrary they are described structurally.

It is the Examiner's view that the disclosure fails to describe the synthesis, isolation, purification and characterization of any of the variants, and for this reason, the disclosure fails to provide any guidance pertaining to acceptable amino acid substitutions, additions and deletions that will

retain the desired properties of the peptide. Accordingly, it is the position of the Examiner that the skilled artisan cannot readily envisage the amino acid sequence of any given PrP^C variant and so it is the conclusion of the Examiner that the applicants were not in possession of the claimed invention at the time of filing. This position is respectfully traversed by the applicants.

As mentioned above, the "variants", as defined by the present claims, are not defined by virtue of a process but clear structural guidance is given as to the definition of the variants. It is submitted that any person of ordinary skill in the art could readily envisage and determine a variant as defined in part (ii) of claims 31 and 33. In addition, however, methods of making conservative amino acid substitutions were well known in the art at the time of filing the present application, as were methods of synthesis, isolation and purification of peptides. The level of skill in the subject art is known to be quite high and, according to MPEP section 2163, "There is an inverse correlation between the level of skill and knowledge in the art and the specificity of disclosure necessary to satisfy the written description requirement". As discussed above, the

applicant provides clear structural guidance as to what constitutes a "variant" and, in light of the teaching of the present application coupled with techniques well known in the art, it is a matter of routine to make such variants. Therefore, applicants submit that the application clearly satisfies the written description requirement.

In any case, new claim 66 clearly satisfies the written description requirement, because the claim defines "variants" by reference to particular amino acids for variation: residue numbers "184, 186, 203, 205, 215, 219 and 220". Variations at the defined positions are illustrated in Figure 5.

Accordingly, it is requested that this rejection be reconsidered and withdrawn.

In view of the above amendments, taken together with the explanatory remarks, it is believed that the present claims are in condition for allowance and reconsideration and withdrawal of the objections and rejections is respectfully requested.

Should issues remain that, in the opinion of the Examiner, could be resolved by telephone interview, he is invited to

contact the undersigned attorney at his convenience to discuss and possibly resolve them in order to expedite prosecution of this application.

Respectfully submitted,

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CERTIFICATE OF MAILING

I hereby certify that the foregoing Amendment in response to the Official Action of December 1, 2004, a Transmittal Letter, a Petition for Extension of Time of one-month, together with a check in the amount of $120.00, in application Serial No. 10/031,975, filed on January 24, 2002, of John Collinge et al, entitled "FRAGMENTS OF CELLULAR PRION PROTEIN AND METHODS USEFUL IN THE DIAGNOSIS AND TREATMENT OF PRION DISEASES" is being deposited with the U.S. Postal Service as First Class mail in an envelope addressed to Commissioner of Patents, P.O. Box 1450, Alexandria, VA 22313-1450, postage prepaid, on March 21, 2005.

Barbara L. Davis
on behalf of C. G. Mersereau
Attorney for Applicant

Date of Signature: March 21, 2005